

REMARKS

This paper is in response to the Office Action dated March 6, 2003. Claims 16, 17, 19-23 and 25-29 are pending. All the pending claims are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,468,678 to Dahlin et al. ("Dahlin") in view of two secondary references: (1) U.S. Patent No. 6,217,252 to Tolliver ("Tolliver"); and (2) U.S. Patent No. 3,985,588 to Lyman ("Lyman").

The claimed invention is directed to a flexible magnet with an induced anisotropy, and in particular to a flexible anisotropic magnet made by thermal spraying. More specifically, the presently claimed invention teaches an article of manufacture comprising a substrate and a magnetic coating that is fixedly attached to the substrate by thermal spraying in the presence of an applied magnetic field. Further, the invention teaches a flexible anisotropic magnet with magnetic particles dispersed throughout a matrix material and formed by thermal spraying in the presence of an applied magnetic field. The magnetic particles comprise strontium ferrite ($\text{SrFe}_{12}\text{O}_{19}$), and the matrix materials comprise polyethylene-methacrylic acid copolymer ("EMAA").

The Examiner alleges that Dahlin teaches an "article of manufacture which may **broadly** be considered a flexible magnet having magnetocrystalline anisotropic magnetic energy, which may comprise a substrate and a flexible magnetic coating fixedly attached to the substrate." (emphasis added) The Examiner admits that Dahlin does not disclose the materials

being thermally sprayed. Furthermore, Dahlin does not allude to the fact that it is possible to form a flexible magnet with anisotropic properties that *could be* thermally sprayed. Lastly, the Office Action states that Dahlin *may* comprise a substrate and a flexible magnetic coating fixedly attached to the substrate, when indeed, Dahlin actually teaches away from the presently claimed invention.¹

Nevertheless, the Examiner proposes to combine the teachings of Dahlin with that of Tolliver, neither of which suggests the instantly claimed compositions, to arrive at the claimed invention. Tolliver teaches the adhesion of a reflective marker to a transportation surface by flame-spraying a binder material along with a particulate topcoat or particulate filler selected from the group consisting of reflective elements, skid-resistant particles, magnetizable particles and mixtures thereof. Nowhere, however, does the Examiner show that either reference provides the motivation to make the proposed combination of the cited references. Rather, the Examiner simply makes the unsupported conclusory statement that "it would have been obvious to one of ordinary skill in the art that flexible permanent anisotropic magnets can be produced having the properties as claimed." (Office Action at page 3).

Additionally, the Examiner cites Lyman as evidence that the presently claimed invention was suggested to be "old in the art" (Office Action at page 3). Lyman teaches a method for producing permanent magnets using a spinning and partially closed container or mold

¹ See discussion *infra* pp. 6-8.

in which the magnetic particles are magnetically aligned and uniformly distributed. However, if the presently claimed invention was indeed rendered obvious by Lyman nearly thirty years ago, predictably the present invention would have been realized via the asserted combination well before the filing date of the instant application. This not being the case indicates that the presently claimed invention was not obvious in light of Lyman.

Three basic criteria must be met in order to establish a *prima facie* case of obviousness. First, there must be a suggestion or motivation to modify the references or combine the reference teachings. The fact that references *can* be combined does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); *see also* M.P.E.P. § 2143. Second, there must be a reasonable expectation of success. *In re Merck*, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Only if all three of these requirements are demonstrated has a *prima facie* case of obviousness been established.

The Examiner fails to demonstrate that the cited references provide motivation or suggestion, nor has he advanced any reason, to combine the primary and secondary references to arrive at the claimed invention. A statement that, because the cited references teach that all aspects of the claimed invention were individually known in the art, modification of the prior art to meet the claimed invention would have been *prima facie* obvious to a person of ordinary skill

in the art at the time the claimed invention was made is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. The mere fact that references can be combined does not render the proposed combination obvious.

The primary reference relied upon (*i.e.*, Dahlin) does not teach the implementation of thermal spraying to achieve the desired flexible anisotropic magnet, indeed supporting Applicants' position that its claimed magnet having a flexible magnetic coating, though perhaps conceptually simple, was not at all obvious. *See, e.g., Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (reversing obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the artisan to make the claimed invention); *In re Lee*, 277 F.3d 1338, 1342-44, 61 U.S.P.Q.2d 1430, 1433-34 (Fed. Cir. 2002) (emphasizing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1325, 50 U.S.P.Q.2d 1161, 1171 (Fed. Cir. 1999) (the level of skill in the art cannot be relied upon to provide the suggestion to combine references); *see also* M.P.E.P. §2143.01.

In fact, motivation to combine the cited references are not found within the teachings of the references themselves, and a combination to reach the claimed magnets having a

flexible magnetic coating was not in the knowledge of the ordinary skilled artisan. The Examiner's statement to the contrary is conclusory and without evidence of justification for the combination. Accordingly, Applicants respectfully assert that the Examiner has failed to establish a *prima facie* case of obviousness due to a failure to cite sufficient motivation to combine the cited references.

Moreover, important differences exist between the presently claimed invention and the cited references such that the invention is nonobvious. In fact, the cited references collectively teach away from the presently claimed invention. Dahlin teaches the possibility of five different layers of an article within the invention, the most important of which is the magnetic layer comprising magnetic particles in an organic binder (col. 8, lines 14-53). Although Dahlin states that "[a]ll layers other than the magnetic and conformance layers (which are preferably in one layer) are optional" (col. 8, lines 11-13), the invention further states that the preferred articles of the present invention are "conformable magnetic pavement marking tapes having an adhesive on the lower major surface of the article, as depicted in FIG. 1" (col. 8, lines 61-65). Thus, the Dahlin reference teaches away from the application of a single layer of matrix material containing magnetic particles in favor of an additional adhesive layer to affix the conformable magnet to the traffic surface.

Similarly, Lyman teaches a mold method for permanent magnets, a desirable feature of the invention being that "it does not require the use of extremely high temperatures"

(col. 2, lines 49-51). In contrast, Tolliver suggests that a basic principle of thermal or flame spraying involves the use of high temperatures to aid in binder film coalescence and that useful temperatures can be as high or higher than the melting range or softening temperature of the binder powder (col. 5, lines 21-33). Therefore, because Lyman teaches away from the use of flame spraying in place of the spinning process, it would not have been obvious to one skilled in the art to substitute thermal spraying for rotating in conjunction with the use of a mold as taught in Lyman.

Furthermore, both Dahlin and Tolliver are directed to the magnetization of surfaces (particularly roadways) and do not contemplate the coating of a "substrate" with magnetic particles as in the presently claimed invention. In particular, Dahlin teaches the application of conformable anisotropic magnetic articles to traffic-bearing surfaces and suggests the use of these articles in mobile object control and/or warning system (col. 6, lines 20-21). Nowhere does Dahlin suggest the use of the conformable magnetic layer other than in reference to traffic-bearing surfaces and vehicle guidance devices. Tolliver teaches the application of thermal spraying to coat transportation surfaces and focuses on the application of reflective elements and skid-resistant markers to these surfaces (col. 12, lines 20-34). Nowhere does Tolliver suggest the application of thermal spraying to a substrate to facilitate the creation of a free-standing flexible magnet with anisotropic properties.

In addition, Lyman teaches a method for producing permanent magnets in which

magnetic material in powder form is premagnetized and then introduced into a hardenable resinous material and caused to be distributed substantially uniformly therein. The resinous material is hardened to form a magnet in which the magnetic particles therein are aligned according to the previously-applied magnetic field. Nowhere does Lyman teach or suggest a flexible magnetic coating formed by thermal spraying of magnetic particles, which are incorporated into a matrix in the presence of an applied magnetic field.

Thus, Applicants reiterate that, when taken as a whole, the cited references do not provide the motivation to arrive at the claimed magnet having a flexible magnetic coating. Accordingly, withdrawal of the rejection of Claims 16, 17, 19-23 and 25-29 under 35 U.S.C. § 103(a) is respectfully requested.

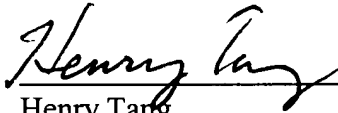
Conclusion

Applicants respectfully request reconsideration of the application, and entry of the foregoing remarks into the file history of the above-identified application. Applicants believe that in light of the foregoing remarks, the claims are in condition for allowance, and accordingly, respectfully request withdrawal of the outstanding rejection. An allowance is earnestly sought.

Applicants believe that no additional fee is required in connection with this submission. However, should any other fee be required, the Commissioner is hereby authorized to charge any such fee to Deposit Account 02-4377. Any required extension of time is hereby requested. Duplicate copies of this sheet are enclosed.

Respectfully submitted,

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Henry Tang
Patent Office Reg. No. 29,705

Peter J. Shen
Patent Office Reg. No. 52,217

Attorneys for Applicants

Baker Botts, LLP
30 Rockefeller Plaza
New York, NY 10112-4498
(212) 408-2500